1094-53 **Effect of a 48-Hour Discontinuation of Beta Blockers Before Dobutamine Atropine Stress Echocardiography on the Occurrence of Sustained Arrhythmic Events During the Test**

Benhalima Bouziane, Hamdaoui Brahim, Rahman Waheedur, Necib Inthidar, Piquet Valerie, Sahraie Hassan, Ziskind Bernard, Buoncuore Antoine, Cohen Ariel, *Delafontaine Hospital, Saint Denis, France, Saint Antoine Hospital, Paris, France.*

Background : Beta blockers (BB) are often discontinued before dobutamine atropine stress echocardiography (DASE) in order to avoid blunting the ischemic response. However, the effect of their discontinuation on the occurrence of sustained arrhythmic events during DASE remains unknown.
Objective : To determine the effect of discontinuation of BB 48 hours before DASE on the occurrence of sustained arrhythmic event; duration ≥ 20s for supraventricular arrhythmia (SVA) and > 10 complexes for ventricular arrhythmia (VA) and to analyze the consequence of this strategy to reach the target heart rate. Among 499 patients (Pts), 352 Pts group 1 (Gp1) did not have a previous BB treatment and 147 Pts (Gp2) were under BB treatment discontinued progressively 48 hours before DASE.
Results : No side effect was observed during the wash out period in Gp2. No difference was observed between the two Gps with regard to age, sex, diabetes, systolic blood pressure at baseline and peak of DASE and baseline ejection fraction whereas hypertension and history of myocardial infarction were more frequent in Gp2; 116 Pts (79%) vs 210 Pts (60%), p=0.0001 and 71 Pts (20%) vs 69 Pts (47%), p= 0.0001 respectively. Concerning the occurrence of arrhythmic events, no difference was observed between the two Gps ; 22 Pts (6%) in Gp1 vs 7 Pts (5%) in Gp2 such for both of SVA : 18 Pts (5%) in Gp1 vs 5 Pts (3%) in Gp2 and VA 4 Pts (1%) in Gp1 vs 2 (1%) Pts in Gp2. In addition, the difference was not statically significant between the two Gps regarding heart rate (beat/min) at baseline and at a maximal dose of dobutamine atropine 76 ± 14 vs 77 ± 15 and 146 ± 33 vs 140 ± 18 respectively. Finally, no difference was observed in reaching target heart rate; 305 Pts (87%) in Gp1 vs 119 Pts (81%) in Gp2 but dose of atropine was higher in Gp2 ; 0.55 ± 0.22 mg vs 0.49 ± 0.24 mg, p= 0.009.
Conclusions : Progressive discontinuation of BB, 48 hours before DASE is safe and does not induce arrhythmic events during the test. Moreover, stopping BB 48 hours before DASE, seems to be enough to reach the target heart rate provided an increase in the dose of atropine.

1094-67 **Noninvasive Diagnosis of Physiologic Stenosis in the Left Circumflex Coronary Artery Using Contrast Enhanced Transthoracic Doppler Echocardiography: Comparison With Exercise 201-Tl Single Photon Emission Computed Tomography**

Kotaro Tokai, Hiroyuki Watanabe, Hiroyuki Yamagishi, Kumiko Hirata, Ryo Otsuka, Takashi Muro, Minoru Yoshiyama, Junichi Yoshikawa, *Department of Internal Medicine and Cardiology Graduate School of Medicine Osaka City University, Osaka, Japan.*

Background: Currently, coronary flow assessment with transthoracic Doppler echocardiography (TTDE) has been reported to be useful to detect coronary artery stenosis. However, the use of this method has been restricted only for the left anterior descending coronary artery. Therefore, the purpose of this study was to measure coronary flow velocity reserve (CFVR) in the left circumflex coronary artery (LCx) by TTDE to estimate physiologic severity of LCx stenosis, comparison with Exercise 201-Tl Single Photon Emission Computed Tomography (SPECT).
Method: we studied 44 patients with angina pectoris (38 men, mean age 61) suspected of coronary artery disease. We excluded the patients with left ventricular asynergy, left ventricular hypertrophy or atrial fibriration. Using coronary flow mapping with low frequency transducer (SIEMENS Sequoia 512, 1.75/3.5MHz), we visualized linear color signal continued during diastole on mid portion of the left ventricular lateral wall in apical four-chamber view. Coronary flow velocity was measured both at rest and during hyperemic conditions (intravenous administration of adenosine 0.14 mg/kg/min) by pulsed Doppler method, and coronary flow velocity reserve was defined as the ratio of hyperemic to basal flow velocities. If the color signal was not adequate for CFVR measurement, we used intravenous ultrasound contrast agent (Levovist, 300mg/ml). All patients underwent SPECT within one week of the CFVR studied by TTDE.
Result: The detection of LCx flow was successful in 37 of 44 patients (84%). SPECT revealed abnormal perfusion defect in the LCx region in 13 patients. When CFVR≥2.0 is normal, sensitivity and specificity of CFVR measurement in the LCx by TTDE for detection of physiologically significant stenosis were 100% (13/13) and 91.6% (22/24), respectively
Conclusion: This is the first report that proves CFR measurement by TTDE can be applied for the LCx. Noninvasive CFVR measurement in the LCx by TTDE is a new and accurate method to estimate physiologic severity of LCx stenosis.

1094-68 **The Doppler Flow Characteristics of the Grafted Left Internal Mammary Provide Diagnostic Information for Patency Over Stress Tl201 Scintigraphy and Dobutamine**

George Athanassopoulos, N. Koutsogiannis, A. Motsi, G. Karatasakis, D. V. Cokkinos, *Onassis Cardiac Surgery Center, Athens, Greece.*

Background: In patients (pts) post aortocoronary bypass (CABG) with a left internal mammary artery (LIMA) grafted to left anterior descending artery (LAD)and regional wall dyssynergy, evaluation of LIMA flow reserve by adenosine Doppler echo (CFRaden) might contribute independently to assessement of LIMA/LAD patency.
Methods: 72 consecutive pts (age 66±9) were studied (5.7±3.5 years) post CABG. All underwent coronary angiography, SPECT Tl201 and CFRaden (proximal LIMA: supraclavicular fossa/infusion rate 140µg/kg/min for 6 min) within a period <3months; 38/72 had also a Dob-echo during this time frame. The cut off point of 1.6 for CFRaden was used as predictor of LIMA/LAD patency.
Results: Overall: When CFRaden outcome value was applied to SPECT: 5/6 false negative and 18/23 false positive SPECT were correctly classified as true positive and true negative respectively. When CFR aden outcome was applied to Dob-echo: 2/4 false positive and 4/4 with false negative dob-echo were reclassified as true negative and true positive respectively. RWMA group: CFRaden outcome had a better kappa coefficient to LIMA/LAD anatomy than SPECT or Dob-echo in pts with resting hypokinesis /akinesis (both p<0.01).
Conclusion: CFRaden yields incremental information for LIMA/LAD patency compared to both SPECT and Dob echo. Diagnostic accuracy is significantly improved in the presence of extensive LAD territory wall dyssynergy.
(): incremental values when the CFR outcome was considered

Diagnostic performance of tests for LIMA/LAD ST>70%

	Sens	Spec	ppv	npv
CFRaden	87	77	48	96
SPECT Tl	57(93)	60(90)	40(72)	84(98)
Dob-echo	43(57)	87(93)	43(67)	87(90)

POSTER SESSION

1095 Doppler Tissue Imaging and Three Dimensional Echocardiography: New Methods and New Applications

Monday, March 18, 2002, 9:00 a.m.-11:00 a.m.
Georgia World Congress Center, Hall G
Presentation Hour: 10:00 a.m.-11:00 a.m.

1095-59 **Assessment of Myocardial Contractile Reserve During Dobutamine Stress Echocardiography in Patients With Coronary Artery Disease by the Novel Index of Contractile Function: Myocardial Acceleration During Isovolumic Contraction**

Linda B. Pauliks, Christoph F. Madler, Robert I. Williams, Michael Vogel, Andrew N. Redington, Nicola Payne, Alan G. Fraser, *Great Ormond Street Hospital, London, United Kingdom, Welsh Heart Institute, Cardiff, United Kingdom.*

Background: Tissue Doppler (TD) has improved quantitative assessment of dobutamine stress echocardiography. We evaluated a novel TD index of contractile function: myocardial acceleration during isovolumic contraction (IVA) after validation in animal experiments. Methods: 149 patients from 8 European centres with coronary artery disease had a dobutamine stress echocardiogram and coronary angiogram. Tissue Doppler data were obtained from 4 standard views at rest, 5, 10, 20, 30 and 40 mcg/kg/min of dobutamine ± atropine. The digital database (cineloops of digital raw data of 2 cardiac cycles each) was analysed off line for IVA and systolic velocities (s-wave). Using the 16 segment model, longitudinal (basal septal, lateral, anterior, inferior and mid septal, lateral, inferior segments), and radial function (basal posterior segment) was measured at rest and peak stress as average of 2 readings. In 70 normal subjects IVA response to dobutamine was determined at all stages. Results: In the normal group, IVA increased in a dose-dependent manner with dobutamine from 1.3±1.1 m/s to 8.3±5.8 m/s2 (638%) for longitudinal function and from 1.2±1.1 to 10.9±6.7 m/s2 (908%) in the basal posterior segment. IVA increased significantly at 5 mcg/kg/min but s-wave did not. In coronary artery disease, resting IVA was the same but the response to peak dobutamine was blunted in the segments corresponding to stenosis on angiogram. In the basal inferior segment (right coronary artery) the peak response was 5.7±2.8 vs. 9.3±4.8 m/s2 (475 vs. 715% of baseline) for diseased vs. normal (p<0.001). In the basal lateral segment (circumflex coronary artery) the peak response was 6.1±3.4 vs. 10.9±4.5 m/s2 (508 vs. 681%of baseline) for diseased vs. normal (p<0.001). Conclusion: Compared to s-wave velocity, IVA rises at lower doses and by a bigger margin, indicating improved sensitivity. IVA is useful as an adjunct to s-wave velocity to evaluate coronary artery disease.

1095-60 **Reconstructive Three-Dimensional Tissue Doppler Imaging for Quantifying Left Ventricular Myocardial Infarction Area After Coronary Artery Occlusion: An In Vivo Chronic Animal Study**

Huifang Wang, Xiaokui Li, Michael Jones, Crispin H. Davies, Julia C. Swanson-Birchill, Rosemary A. Rusk, Sebastian T. Schindera, Arthur D. Zetts, Glenn R. Lie, David J. Sahn, *Oregon Health & Science University, Portland, Oregon, NHLBI, Bethesda, Maryland.*

Background: Characterization and quantification of regional wall motion abnormalities is of major importance in the noninvasive evaluation of patients with ischemic myocardial dysfunction. This study tested determination of myocardial infarction area of the LV using 3D reconstruction tissue Doppler imaging in sheep. **Methods:** Eight sheep (35-47kg) underwent occlusion of LAD coronary artery its or diagonal branch to create apical myocardial infarction and aneurysm formation 19-27 weeks prior to this study, at which time 3D echo images were obtained on open-chest animals. Volume loading, dobutamine and metroprolol infusion were used to produce a total of 28 hemodynamic states. Epicardial scanning was performed using a 2.5MHz probe rotated by a step motor over 180° controlled by a GE/VingMed Vivid FiVe scanner. Using EchoPac 3D analysis software, the aneurysms were identified by phasic velocity trace from 3D objects and 6-8 parallel cutting planes were selected to cover the entire left ventricle with the arc lengths of the inf-